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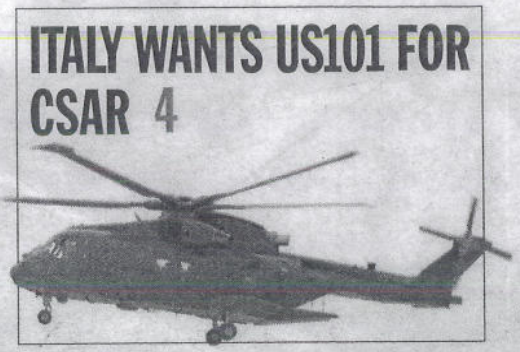

INSIDE

U.S. Wants 3,000 New Robots for War

Up to 1,000 by Year's End; Drive-off To Determine Winner

By KRIS OSBORN

Responding to a joint urgent operational needs statement from Iraq and Afghanistan, the U.S. Army and Marine Corps have launched a whirlwind competition to buy up to 1,000 new bomb-detecting robots by the end of the year — and 2,000 more within five years — with deliveries to start next month.

The competition for the XBot began with a July 17 solicitation on the Federal Business Opportunities Web site for a proven, remote-controlled robot weighing no more than 50 pounds and operator control unit weighing less than 20 pounds.

Over the past month, robotmakers have been readying for a "drive-off" Aug. 13-15 at Redstone Arsenal in Huntsville, Ala., that will determine the winner. Remotely operated unmanned ground vehicles (UGVs) will be tested rigorously on a predeter-

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ROBOT ROUNDUP

Four companies have confirmed their interest in competing for the Pentagon's contract for 3,000 new combat robots, and others may join the contest Aug. 13-15 when it formally starts at Redstone Arsenal, Ala., where each of the vehicles will be put through its paces. A winner will be picked Sept. 14.

	PackBot	MARCbot	TALON	Negotiator
Maker	iRobot Burlington, Mass.	Exponent Menlo Park, Calif.	Foster-Miller Waltham, Mass.	Robotic Fx Worth, Ill.
Deployments	1,000 in Iraq and Afghanistan	1,000 in Iraq and Afghanistan	1,000 in Iraq and Afghanistan	Hundreds in state, local, federal law enforement
Price (each)	$80,000 to $150,000	Less than $10,000	About $110,000	N/A
Features	■ 30-53 pounds ■ EOD, IOD detection ■ Sniper-detection ■ Surveillance and reconnaissance	■ 25 pounds ■ EOD, IOD detection ■ Surveillance and reconnaissance	■ 115-140 pounds ■ EOD, IOD detection ■ Infrared camera ■ Surveillance and reconnaissance	■ 45 pounds ■ EOD, IOD detection ■ Infrared camera ■ Surveillance and reconnaissance

SOURCE: Defense News research

DEFENSE NEWS GRAPHIC BY LISA ZILKA CHAVEZ

ROBOTS

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mined course, with operators required to guide them over rocks and uneven terrain and through water, to detect obstacles under vehicles and test communications.

The victor will be crowned Sept. 14 with a contract for 101 robots. The first must be delivered within 10 days, with up to 1,000 to enter service by year's end. The aim is to bring the number of U.S. military robots in combat up to 5,000 by year's end, said Lira Frye, spokeswomen for U.S. Army Aviation and Missile Command at Redstone.

Due to the urgent nature of the request from U.S. Multi-National Corps, Iraq, the procurement process is moving unusually fast, Army and industry officials said.

Case in point? The Redstone test is taking place in advance of formal bids. Instead of a complex process to become a competitor, contestants will be able to register when they arrive with their wares at Redstone. And the winner will be awarded the indefinite delivery/indefinite quantity contract virtually on the spot.

The program is being spearheaded by the Pentagon's Robotic Systems Joint Project Office (RSJPO), formed in 2004 to manage burgeoning robot needs. The Army's Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) will oversee procurement.

"In 2006, U.S. military robots performed more than 30,000 missions with thousands of lives saved," Frye said. "Anytime you can send a robot downrange instead of a human, you are potentially saving lives."

The first order will be for 101 robots with up to 3,000 more to follow over a maximum period of five years. The contract requires at least 30 more robots be delivered by Dec. 12, 30 more by Jan. 12. However, the initial deployment goal following the contract award will be the rapid fielding of 1,000 robots, Frye said.

To do that, the RSJPO drafted an ambitious timetable condensing the entire acquisition process, from the joint urgent operational needs statement to testing, bids, contract awards and deployment, to a mere two months.

"There has been a perceptible increase in the speed with which the Army acquires essential equipment. Look at MRAP," said Loren Thompson of the Lexington Institute, referring to the Mine-Resistant Ambush Protected vehicle that is a top Pentagon priority to protect troops in Iraq. "Not only is production of the baseline version being accelerated, but they are already moving to an MRAP II configuration."

Industry

The contract, one of the largest ever for UGVs, has attracted the attention of industry players specializing in lightweight robots with combat experience. iRobot and Exponent have confirmed their intention to pursue the award. Also participating is Worth, Ill.-based Robotics Fx, maker of the 25-pound Negotiator Tactical Surveillance Robot now serving with state, local and federal law enforcement agencies.

Exponent, Menlo Park, Calif., builds the MARCbot-series, a 25-pound reconnaissance robot used in Iraq to detect improvised explosive devices (IEDs) since April 2004. The MARCbot was developed as a low-cost, bomb-detecting robot for the Army's Rapid Equipping Force in 2004.

At a cost of less than $10,000 each, the battery-powered robot has a low-light camera, allowing nighttime operations.

"Soldiers were walking up to suspected IED's and kicking their feet at it. We developed some rough prototypes, but even the rough prototypes were able to determine the presence of IEDs," said Bill Cohen, MARCbot's principal engineer for Exponent, who works in Baghdad with the Army's Rapid Equipping Force.

The company has produced nearly 1,000 of the series.

"People come up to me and say, 'You know what, your robot saved my life last night,'" Cohen said.

iRobot, Burlington, Mass., makes the PackBot, the most numerous combat robot, with more than 1,000 now serving with troops in Afghanistan and Iraq.

Last month alone, iRobot was awarded two contracts totaling $17.5 million. PEO STRI ordered 14 PackBots with the ICx Fido Kit and five PackBot Explosive Ordnance Disposal (EOD) robots for $8.6 million, while Naval Sea Systems Command ordered 60 PackBot Man Transportable Robot Systems for $8.9 million for joint-service EOD disposal.

"The good thing about the PackBot is that it is a capability that is fully rugged," said Jim Rymarcsuk, iRobot's vice president of sales and marketing.

Depending on the variant, PackBots cost from $80,000 to $150,000 each. Their popularity has propelled military sales from $95 million in 2004 to $142 million in 2006.

U.S. troops have been sending PackBots into caves, buildings and other high-risk areas to search for enemies, intruders and explosives. The robot can be programmed to perform other functions. "It has a full computer on board," Rymarcsuk said. "With software downloads, you can add capability."

Aside from the PackBot, iRobot is considering entering into the competition a robot similar to its Small UGV (SUGV)-early, a version of which is being developed by the Army's Future Combat Systems program. With smaller 18- to 20-inch arms and high-performance infrared cameras, the 30-pound SUGV is designed for surveillance and reconnaissance missions.

"The SUGV is being developed with the same basic digital architecture that is the PackBot, so we expect to be able to add all of the different mission capabilities," said Bob Bell, iRobot's SUGV program director. "It will look at and pull the cover off an IED."

Foster-Miller of Waltham, Mass., a part of QinetiQ, is expected to propose a lightweight TALON robot, heavier versions of which are now performing reconnaissance missions in Iraq and Afghanistan, Foster-Miller officials said. Although most of its IED-detecting surveillance robots weigh 115 to 140 pounds — too heavy for the RSJPO's 50-pound requirement — Foster-Miller is pursuing design changes to field a vehicle small enough to qualify for the competition, company officials said.

"Prior to this solicitation, we did not have a 30- to 50-pound robot," Foster-Miller Vice President Bob Quinn said. "We are working feverishly to have a compliant entry."

In a move to support the surge, RSJPO on Aug. 8 placed a $51.5 million order for 250 more TALON robots for combat engineers and EOD technicians serving in Iraq and Afghanistan. The order was a response to service members in theater, Quinn said. TALON robots cost roughly $110,000 each.

"This X-bot solicitation is for infantry to get eyes around corners," Quinn said. "Thirty-five- to 50-pound robots are good for observation, but for neutralization, which includes detonating explosives, heavier robots are often preferred."

At the smaller end of the scale is the Dragon Runner, a 9-pound robot with ground sensors developed by the U.S. Marine Corps' Warfighting Lab and Carnegie Mellon University.

The 15-by-11-inch unit uses audio and video sensors to beam images back to troops and is tailored for urban combat. It can be driven at 45 mph and survive being thrown out of a three-story window, according to its makers' Web site. The robot's electronics were developed by Automatika, which was bought by Foster-Miller. The Dragon Runner is not expected to enter the competition, Foster-Miller officials said. ■

E-mail: kosborn@defensenews.com.